Lunar Calendar and Ramadan effect on Islamic Mutual Funds Performance in Pakistan

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Abstract:

This report is principally intended to ascertain out the result of the lunar calendar with special focus on the holy month of Ramadan on the operation of Islamic mutual funds in Pakistan. Economic activity in Pakistan demands a different turn due to observation of fast and short working hours in the country in the month of Ramadan. This work utilizes the logit model to investigate the impact of lunar calendar generally and the holy month of Ramadan, specifically along the net asset values of the mutual fund. This study confirms lower expected growth of net asset value in the month of Ramadan and the other stages of the religious sentiment. Economic activity regains pace after Ramadan and Zulhajjah as evident from the probable increase of net asset value of the Islamic mutual funds in the month of Shawwal & Moharram following months of the Ramadan and Zulhajjah respectively.

Key Words: *Performance, Net asset Value, Lunar Calendar, Ramadan.*

Introduction:

Pakistan is an ideological country. There is a general apprehension that people of the country want the Islamic economic system to prevail in the country. Different attempts have been made for the establishment of the Islamic economic system. The effort can be traced back to the establishment of the Islamic ideology council on August 1, 1962. One of the main aims of the council was to lead the people through assemblies to live their lives according to Islamic teachings individually and collectively as a state.

Investment opportunities were not widely available for smaller investors. The first asset Management Company was also formed in 1962 by the name of National Investment Trust Limited (NITL). National Investment trust is the largest and oldest fund management company in Pakistan with the fund base of

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Rs 74 Billion, and 54218 unit holders till June 2012. In the continuation of efforts to provide the people of the country with Shariah compliant investment alternatives, Islamic mutual funds emerged in 1990's in Pakistan. Al Meezan investment Management Limited is the largest among the sharia compliant mutual fund companies in Pakistan. It was established in Feb1995 and currently managing assets of Rs 43 billion. It is evident from the literature that mutual funds market is growing all over the world. Pakistan is a growing country and mutual funds market has a meager share as compared to the international marketplace.

Islamic finance is different from the interest based finance. It is not nearly the profit maximization but to conform to the teaching of Quraan and Sayings of the Holy prophet (PBUH). In this connection, it prohibits the Riba and excessive risk taking (Gharar) in the financial transactions .[1] Likewise, Islamic mutual funds hold the different characteristics than the interest based mutual funds. Prior to performance evaluation of the Islamic mutual funds, characteristics' of the Islamic mutual funds must be kept in mind.

Sharia boards define the different criteria for the investment to be Islamic. Dow Johns three point criterion for the firm to be halal for investment includes total debt to capitalization should be less than 33% secondly the ratio of hard currency and securities bearing interest to the capitalization should be 33% and the last is account receivable to market capitalization must be 33%.2 The Meean bank's advisory board has a different perspective of the investment to be halal and defined 6 point criteria in this association, i.e. The business of the investee company must be Halal, business approved by the Sharia. Interest based debt ratio of total assets must be less than 37%. Noncompliant investment must not increase the 33% of the total investment of the company. Income from such sources which are not Sharia compliant should be less than 5% of the entire income of the company. The company's non liquid asset must be 25% of the company's entire assets. In the end, the net liquid assets per share should be less than or equal to the market price per share. To get at the net liquid assets they suggest the subtraction of illiquid assets, long term liabilities and current liabilities from total assets divided by the total number of shares outstanding. The rational for setting aside some portion of interest in the firm equity and income can be attributed to eliminate the interest factor gradually. Basso & Funari differentiated the socially responsible funds on three grounds, ethical screening, Cause base investing and shareholder advocacy. [3] Companies which receive good reputation on socially responsible measures are admitted in the portfolios due to positive screening and companies which are defective at the socially responsible measures are excluded from the funds portfolios. The socially responsible definition of this study is the funds which are adjusted to the screening principals of the Islamic Mutual funds or Amana funds. Socially responsible funds have different definitions as Statman has mentioned that some funds are defined as socially responsible on the groundwork of Christian beliefs,

besides, there are Beacon screens criteria on which they screen out the companies which harm the creatures. [4]

Interest bearing investments are different from the Islamic socially responsible funds as no criteria, limitations are applicable to them. Mutual funds are growing in the country. At that place are few studies on the mutual funds in Pakistan, which examined the performance evaluation of the mutual funds in Pakistan.5, 6 Calendar effects studies have been borne on the stock market but the mutual funds have not been studied this context. [7] The focus of this work is to determine the impact of Hijri calendar with the special focus of Ramadan on the mutual funds in Pakistan.

Literature Review:

Fund performance is the major concern for the investors. To facilitate the investment decision making the researchers have studied the impact of the end of the week, end of the year, January, a week of the day effect in the different markets. Some of the leading studies on this subject have demonstrated that the Monday has the significant impact on the yields. [8,9,10] French showed in his field that Monday returns are nearly three times higher than the normal days of the workweek. [11] Gibbons and Hess are different in their findings as compared to French. They are of the view that Monday has the negative returns than the other weekdays. Contempt of this contradiction in the results this is apparent from the literature that Monday has the upshot on the returns of the grocery store, either positive or minus.

This strain of the outcome has no economic rationale like the political scenario or the GDP growth pace of the country. The researchers have extended this work to the lunar effect on the stock markets. It has been examined that the entire moon and new moon have the effect on the stock market yields, the returns in the new moon days are more eminent than the full moon days.[12] Likewise, security, returns are affected by many other non economic indicators. Fund returns are correlated with the sunlight.[13] Some of the researchers are different along the moon effect on the livestock markets and they have picked apart the moon effect and tried out that market response according to the market efficiency theories. [14]

The Islamic calendar is different from the Georgian calendar. Islamic calendar have the 255 days instead of 265 as in the Georgian calendar. People in Islamic countries follow the Hijri calendar for their religious holidays their business activities are also rolling around these days. Likewise, in the west they possess their own set of holidays. They have defined the holidays in their setting as New Year's day, Easter Friday and Easter Monday, 26th of January & 2nd June for Australia day and the Queen’s birthday respectively. [15] On the contrary, to those in Islamic countries people celebrate Eid-UL-Fitar, Eid-UL-Azha. In the context of Pakistan we have the 14th August as Independence Day, 25th December as Quaid-e-Azam day. The Impact of the lunar calendar has also been studied by the different researchers. On that point is some criticism of the day effect like French is of the view that Monday return are not in reality higher than

the otheweekdaysys, if we study the trading hours as the measure of performance. Monday's returns are actually the representative of three days of investment. [16] Investment for the three days brings the highest return on Monday. This is likewise supported by the other researchers as they are of the view that Monday brings three times higher returns. Whereas Cross is of the opinion that stock returns are higher on Friday than Monday. The difference of finding among the researchers seems due to the studies conducted in different time points and different areas and markets. [17]

Methodology:

One of the mutual funds, Meezan Islamic fund, is selected for this study. Retrieved data is from the official website of the Mutual funds association of Pakistan for the past five years commencing from May 2008 till June 2013. Data for this period is converted from Gregorian to Hijri Calendar to see the Impact of Islamic month of Ramadan on the Net asset value of the mutual fund. Every increase and decrease in the net asset value of the mutual funds were converted into dummy variable "D Nav". Net asset values of the mutual funds depict the performance of the fund over time. Net asset values of the mutual funds are utilized as the performance indicators of the finances. Mutual funds perform better with the increase in the net asset values. Similarly decrease in the net asset values the poor performance of the mutual funds. To evaluate the impact of the calendar with the special focus of the month of Ramadan, a dummy variable for NAV was assigned value "1" for the every increase in net asset value over the period of study and "0" otherwise. Similarly dummy variables were created for all the months. Total 1328 observations of net asset values were included in the model to define the impact of calendar and Month of Ramadan. The available data were examined by using the Binary Logit model to determine the impact of Islamic month of Ramadan on mutual fund operation. D Nav was regressed on the twelve dummies of months using binary logit regression.

Model of the study:

$$\ln\left(\frac{p}{1-P}\right) = c + \beta_1 M_1 + \beta_2 M_2 + \beta_3 M_3 + \beta_4 M_4 + \beta_5 M_5 + \beta_6 M_6 + \beta_7 M_7 + \beta_8 M_8 + \beta_{10} M_{10} + \beta_{11} M_{11} + \beta_{12} M_{12}$$

$$\ln\left(\frac{p}{1-p}\right) = \textit{Probability of Increase in Net asset Value}$$

Variables Explanation

Variable Name	Explanation
Dnav	Net Asset Value is dependent Variable in the model. Every increase in the Nav is assigned "1" and "0" otherwise
M_1	This is the dummy variable for the first month of Islamic Calendar "Moharram". When Net Asset Value date falls in Moharram "M_1" is assigned "1" otherwise "0".
M_2	This is the dummy variable for the second month of Islamic Calendar "Safar". Whenever Net Asset Value date falls in Safar "M_2" is assigned "1" otherwise "0".
M_3	This is the dummy variable for the Third month of Islamic Calendar "Rabi-UL-Awwal". Whenever the Net Asset value date falls in Rabi-UL-Awwal. M_3 is assigned "1" otherwise "0".
M_4	This is the dummy variable for the fourth month of Islamic Calendar "Rabi-us-Sani". When the Net Asset Value falls in Rabi-us-Sani. M_4 is assigned "1" otherwise "0".
M_5	This is the dummy variable for the fifth month of Islamic Calendar "Jamadi-UL-Awwal". When the Net asset Value falls in Jamadi-UL-Awwal, the M5 is assigned "1" otherwise "0".
M_6	This is the dummy variable for the Sixth month of Islamic Calendar "Jamadi-us-Sani". When the Net Asset Value falls in Jamadi-us-Sani. M_6 is assigned "1" otherwise "0".
M_7	This is the dummy variable for the seventh month of Islamic Calendar "Rajab". When the Net Asset Value fall in Rajab, M_7 is assigned "1" otherwise "0".
M_8	This is the dummy variable for the eighth month of Islamic Calendar "Shaban". When the Net Asset Value fall in Shaban, M_8 is assigned "1" otherwise "0".
M_{10}	This is the dummy variable for the tenth month of Islamic Calendar "Shawwal". When the Net Asset Value fall in Shawwal, the M10 is assigned "1" otherwise "0".
M_{11}	This is the dummy variable for the eleventh month of Islamic Calendar "Zeqadah". When the Net Asset Value fall in Zeqadah, M_{11} is assigned "1" otherwise "0".
M_{12}	This is the dummy variable for the twelfth month of Islamic Calendar "ZulHajjah". When the Net Asset Value fall in ZulHajjah, the M12 is assigned "1" otherwise "0".

Results from the logit model are presented in the table below

	Coefficients	Z Statistics	Probability
C	-0.139710	-1.154355	0.2484
M_1	0.213502	1.231043	0.2183
M_2	0.199427	1.158613	0.2466
M_3	0.362718	2.082759	0.0373
M_4	0.230987	1.357075	0.1748
M_5	0.139710	0.860341	0.3896
M_6	-0.004295	-0.026271	0.9790
M_7	0.036798	0.221608	0.8246
M_8	-0.060749	-0.353427	0.7238
M_{10}	0.025525	0.145941	0.8840
M_{11}	-0.155469	-0.910980	0.3623
M_{12}	-0.291017	-1.622851	0.1046
LR Statistics 23.42443 P value (0.015390)			
Mean dependent Variable 0.468373			
Standard Error of Regression 0.496867			

The probability of an increase in net asset values of the mutual funds is calculated for each month by using the below formula. The month of Ramadan is included in the model as the intercept, hence the probability for the increase in the value of the month of Ramadan calculated as follows

$$P_{Ramadan} = \frac{e^{Intercept}}{1+e^{Intercept}} = \frac{0.86961}{1.86961} = 0.4651 = 46.51\%$$

Probability results depict that there is a 46.51 % likelihood for the increase in the net asset value of the funds in the month of Ramadan. The results of the previous and following month of Ramadan are 48.48% and 50.63%, respectively, which clearly show the performance of the mutual fund is poor in Ramadan as compared to these months. These results also show that there is a 53.49 % likelihood of decrease in the net asset value of mutual funds in the month of Ramadan. Business activity in the holy month of Ramadan is low due

to the short working hours. This might have an impact on the performance of the mutual funds during this month.

Moharram is the first month in the Hijri Calendar. There is a substantial increase in the likelihood of an increase in the net asset values of mutual funds as compared to the previous month ZulHajjah, which is the last month in the Islamic calendar

$$P_{Moharram} = \frac{e^{\beta_1}}{1+e^{\beta_1}} = \frac{1.238006}{2.238006} = 0.553174 = 55.3\%$$

The likelihood of increase in net asset value is approximately 13% higher than the previous month. This is the significant difference. The reason for lower likelihood in the last month in comparison might be again due to the festive month due to Eid Holidays and Hajj.
The probability of a likely increase in the net asset values of mutual funds in the month of Safar is 54%. This value if quite higher than the benchmark month of Ramadan.

$$P_{Safar} = \frac{e^{\beta_2}}{1+e^{\beta_2}} = \frac{1.220703}{2.220703} = 0.549296 = 54.92\%$$

Below is the performance of Mutual funds in Rabi-UL-Awwal. This month is showing highest likelihood for the increase in the value of the mutual fund during this month. The highest likelihood in this month can be attributed again to the religious sentiment in the people in Pakistan.

$$P_{Rabi-ul-Awwal} = \frac{e^{\beta_3}}{1+e^{\beta_3}} = \frac{1.4372}{2.4372} = 0.589698 = 58.96\%$$

Likelihood of increase in the value of mutual funds in the month of in the month of Rabi-us-Sani is 55.74%. This value is slightly lower than its previous month, however this is higher than the month of Ramadan.

$$P_{Rabi-us-Sani} = \frac{e^{\beta_4}}{1+e^{\beta_4}} = \frac{1.259843}{2.259843} = 0.557491 = 55.74\%$$

Below is the likelihood of the fifth Hijri month. The expected performance of the mutual fund is better than Ramadan in this month.

$$P_{Jamadi-ul-Awwal} = \frac{e^{\beta_5}}{1+e^{\beta_5}} = \frac{1.14994}{2.14994} = 0.534871 = 53.48\%$$

Jamadi-us-Sani is the sixth month. The likelihood for the increase in the net asset value of the fund is 49.89 %. However, there are 50.11 % chances for no change or decrease in the net asset value of the funds.

$$P_{Jamadi-us-Sani} = \frac{e^{\beta_6}}{1+e^{\beta_6}} = \frac{0.995714}{1.995714} = 0.498926 = 49.89\%$$

Net asset values, the likelihood of an increase in the month of Rajab is 50.91%, which is higher than the previous month and better than the month of Ramadan as well.

$$P_{Rajab} = \frac{e^{\beta_7}}{1+e^{\beta_7}} = \frac{1.037483}{2.037483} = 0.509198 = 50.91\%$$

Shaban is the eighth month in the calendar and one month prior to the Ramadan the likelihood of an increase in net asset value of the fund is lower as compared to the previous month of Rajab and it further reduces in the month of Ramadan.

$$P_{Shanab} = \frac{e^{\beta_8}}{1+e^{\beta_8}} = \frac{0.941059}{1.941059} = 0.484817 = 48.48\%$$

Shawwal is the tenth month in calendar and it follows Ramadan. The likelihood of increase in the month is approximately 4% higher as compared to the month of Ramadan.

$$P_{Shawwal} = \frac{e^{\beta_{10}}}{1+e^{\beta_{10}}} = \frac{1.025854}{2.025854} = 0.506381 = 50.63\%$$

Zeqadah is the eleventh month in the calendar. The likelihood of increase in the net asset value of the fund has decreased as compared to the previous month. This trend prevails till the end of the year.

$$P_{ZeQadah} = \frac{e^{\beta_{11}}}{1+e^{\beta_{11}}} = \frac{0.856014}{1.856014} = 0.461211 = 46.12\%$$

Zulhajjah is the last month of the Islamic calendar. The likelihood of increase in the net asset values is only 42.77%, which is the lowest in the year. This decrease can be attributed to the religious sentiment of Eid and Hajj.

$$P_{ZulHajjah} = \frac{e^{\beta_{12}}}{1+e^{\beta_{12}}} = \frac{0.747503}{1.747503} = 0.427755 = 42.77\%$$

Conclusion:

The results of the study depict the Islamic calendar has the significant impact on the performance of the mutual funds. The net asset value of the mutual funds, decreases during the months of religious sentiment. The findings of the study are consistent with the previous research in which it has been established

that holiday has an effect on the returns of the stock exchange market. [18] Similar findings of weekend effect have also been established in the study of stock returns. [19] In Muslim countries the religious holidays and months have significant impact on stock markets. The findings of the study are also consistent with the study of calendar anomalies in which it has been established that the business activity is lower in the Ramadan due to the religious obligations of the people in the country. [20] Some researchers have also established that the returns during Ramadan are lower as compared to the rest of the year. [21] Islamic Mutual funds have shown the positive trend overall. It is evident from the results of the study that overall seven months in a year showed more than 50% likelihood in the increase of net asset values of the mutual funds.

Implication of the Study:

The study has the practical implications for the fund managers and investors. The findings of the study will guide the investors to manage their investment, according to the performance of the Islamic mutual funds market in the holy month of Ramadan. For the fund managers it will provide the guidance to exploit the person's attitude towards the investment in the Islamic mutual funds accordingly.

Limitation of the Study:

For this study, the only one mutual fund is selected from the more than forty different funds operating in the market. Reason for the selection of Meezan Islamic fund data for the study is based on the market leadership of Meezan Bank in the Islamic finance market of Pakistan. For the future studies the inclusion of all the Islamic and conventional mutual funds data for analysis is recommended. Comparison of the conventional an Islamic mutual funds response to the Lunar Calendar can also be made to arrive at the most concrete results.

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